COLONY OF SEYCHELLES

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE YEAR

1956

COMMONWEALTH MYCOLOGICAL INSTITUTE
9 SEP 1957

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Annual report of the Department of Agriculture for the year 1956.

Introduction

The price of copra improved slightly in 1956 but, largely due to weather conditions, many estates continued to show reduced yields. Cinnamon leaf oil prices declined. Both yield and revenue from vanilla plantations were at a high level, production of dried fish and shark improved still further, rough cinnamon bark prices rose and stimulated production, there was a recovery in guano exports, a surprisingly large tonnage of *Turbo* shells was exported at remunerative prices, and there was considerable interest in cinnamon quill production.

In all, the export trade with which these Reports are so largely concerned totalled around Rs. 6½ million, a figure very close to that for 1955.

Policy of the Department

The formal unvarying policy of the Department may be summed up as the practise and encouragement of optimum long-term use of the land and its products, and of other natural resources, in the best interests of the population. In detail, this involves more than can be set out here but the following are major aspects ;

1. The encouragement and betterment of coconut cultivation on all, or most, land to which the crop is suited.
2. The encouragement and betterment of subsidiary export-crop cultivation.
3. The encouragement and betterment of food-crop cultivation on all or most holdings in order that cultivators may be saved from the worst effects of a slump in the value of export crops, and to reduce food importation.
4. The encouragement and betterment of local processing.
5. The encouragement and betterment of fisheries.
6. The establishment of forest reserves, their re-afforestation, and the obtaining of a sustained yield from them.
7. The up-grading of livestock and the encouragement of cattle, pigs, and poultry keeping for increased fertility and profit.
8. Encouragement and active assistance in the rehabilitation of eroded land and other unproductive areas.

Progress achieved in 1956

Some further small progress was made towards reducing, by lease what might be called the Department's own "back-garden" to a size more in keeping with that of the Colony and thereby freeing the very small technical staff for work in the interests of private-enterprise producers. As regards catchments, or land suitable for re-afforestation, no leasing was, or will be, favoured.

The development of the leasehold smallholding scheme revealed the pressing need for such a scheme in this Colony. The occasional tenant who reveals himself as indolent or dishonest can be, and was, used as a stick with which to beat the supporters of the Scheme but it is undeniable that smallholders have made a really worthwhile contribution to local food supplies and, equally important, their efforts have brought under profitable cultivation many areas hitherto clothed in worthless scrub.

Re-afforestation made good progress despite a difficult season and the Forester can congratulate himself and his staff on having now created nearly 2,000 acres of forests which will be a blessing to future generations. The departure for overseas training of a young Seychellois Forest Ranger was a logical step towards ensuring the future of the programme.

The young Seychellois Agricultural Officer, a "West of Scotland" graduate, had the opportunity to gain experience with a number of aspects of the type of work for which he will, no doubt, be responsible as regards both planning and execution in the not too distant future.

Concentration of Departmental livestock under the Stock Inspector's expert eye, and under the Agricultural Officer, has proved to be far more satisfactory than the scattered stock-keeping practised prior to 1953.

The successful establishment of the citrus black-fly parasite, the successful conclusion to the trial of toxaphene, and the more promising outlook for biological control of rhinoceros beetle are reported.

Government Estate Managers, who had, meanwhile, to contend with praedial larceny on an exceptionally large scale, are to be congratulated on keeping the percentage of bad nuts and 2nd. Grade copra well below the 1955 figures.

The office staff worked as an efficient team under the Head Clerk and the Department's record as regards audit queries and their disposal was noticeably better. Departmental stores were more noticeably "clean, bright, and slightly oiled" and, equally important, in existence.

The direct control of Melittomma insulare made good progress under more difficult conditions and the end to the first round of work in Praslin is now in sight.

Weather

Total rainfall was below normal. The dry season was longer than usual and accompanied by fresh winds which probably caused abnormal drying of land surfaces. In the following table, kindly supplied by the local office of the East African Meteorological Department there will be found a column, new to these reports, showing average rainfall for 54 years.

Rainfall and Air Temperature, Victoria

1956 Month.	Rainfall (inches)	Air Temperature (Fahrenheit) Mean Max.	Mean Max.	Highest Max.	Lowest Min.	Average Rainfall for 54 years.
January	7.77	85.1	76.7	88.5	73.1	14.64
February	12.97	85.8	76.8	89.0	71.2	10.15
March	14.69	86.7	77.4	89.6	73.4	8.69
April	8.60	87.3	79.8	90.8	75.2	7.47
May	1.83	85.3	78.7	89.1	75.1	6.78
June	1.49	82.5	76.2	84.4	73.6	3.70
July	1.61	81.1	74.7	83.4	70.3	3.39
August	2.41	81.1	75.2	83.8	71.5	2.62
September	4.08	81.4	75.8	83.1	72.0	5.37
October	3.47	83.3	76.2	86.5	72.6	6.20
November	14.72	83.8	75.0	87.1	72.0	8.65
December	9.11	85.0	74.7	87.4	72.2	13.21
Total	82.75	—	—	—	—	90.87

Total Rainfall in 1956 at Recording Stations

Mahé, Victoria	82.75 inches (at Port Office)
Mahé, Mont d'or	105.33 inches (1,000 feet above sea level)
Mahé, Grand'Anse	95.24 inches (sea level)
Praslin	89.14 inches (sea level)
La Digue	Record incomplete (sea level)

SECTION I

Agriculture, Fisheries and Forestry in the Colony

A. Crop Husbandry

1. Coconuts

Production of copra for export was a hundred tons below the unusually low 1955 figure. As previously, copra for export was sold by the Seychelles Copra Association. Prices realised were from £59.8.3. to £63.6.6. per ton f.o.b., the average price being £61.13.10 as compared with £60.10.5. in 1955. The local selling price ranged from Rs. 686 to Rs. 805 per ton, compared with Rs. 666 to Rs. 700 in 1955. Cesses and duties were as before: Association cess Rs. 2 per ton, Price Stabilisation Fund Cess 6% on f.o.b. value, Export Duty 3% on f.o.b. value. All exports were to India.

Oil, poonac and soap were in ample supply but there were no exports. The two coir factories produced mattress fibre and cordage for the local market.

The prolonged dry season, particularly on certain coral islands, had a noticeably adverse effect on a number of plantations. Though scale insects remained under biological control the balance tended to turn in favour of the pest during drought. Losses due to the pests *Melittomma insulare* and *Oryctes* other than in the Scheme-treated areas of Praslin (See Section II) were much as usual.

No instance of clear-felling of any substantial area of senile palms with a view to later re-planting was observed, replacement of individual palms as losses occur continuing to be the custom. One island owner was reported to have purchased a tractor-operated augur, and other equipment, for planting operations on a coral island having a calcium carbonate/calcium phosphate "pan".

Reference to the work of the Department will be found in Section II.

Production for export, and actual export, 1952 — 56.

Year	Production (Metric Tons)	Value f.o.b. (Rupees)	Export (Metric Tons)	Value f.o.b. (Rupees)
1952	6,210	4,890,333	4,980	4,074,915
1953	6,054	6,025,730	7,398	7,015,504
1954	6,472	6,579,419	5,883	6,024,205
1955	5,846	4,730,530	6,313	5,190,018
1956	5,738	4,783,833	5,579	4,589,233

2. Cinnamon

There was no recovery during the year from the low price which cinnamon leaf oil reached in 1955, and no firm indication as to the causes. Towards the end of the year some, but not all, commercial distillers (i.e. distillers who purchase cinnamon leaves from estates lacking their own distilleries) ceased production, announcing that they did so as a protest against the continuance of the sole agency system under which the

Colony's production has been sold for many years past. Since the distilleries closed at around the time of the "flush" (when it is less profitable to distil) at the customary period for cleaning and re-fitting, and when prices were at a low ebb, the true reason for stopping production was arguable. As it appeared that the closing of the several Victoria-district distilleries might accentuate the urban unemployment problem Government went into direct production of oil at the Central Distillery with leaves from Crown Lands whose harvest is normally sold to commercial distillers by tender. All commercial distillers were back in production shortly afterwards.

There was a welcome recovery in the price for rough unscraped cinnamon bark (a by-product of cinnamon leaf harvesting), local prices ranging up to Rs. 400 per ton. The lower prices for leaf oil encouraged more thorough collection of bark. Over a ton of quills (young, scraped, rolled bark) with an f.o.b. value of some Rs. 4,000 per ton were exported. No export standards specifically applicable to quills occur in the law (which requires only that cinnamon bark shall be genuine, dry, and free from impurities) and some consignments of quills were made from over-thick bark and lacked flavour. There was no commercial distillation of cinnamon bark.

Reference to the work of the Department will be found in Section II.

Cinnamon leaf oil exports 1952 — 56

Year	Quantity in Tons.	Value in Rupees f.o.b.
1952	69	1,201,298
1953	99	1,045,989
1954	99	1,388,294
1355	85	910,997
1956	95	899,494

Cinnamon Bark exports, 1952 — 56

Year	Quantity (Metric Tons)	Value in Rupees f.o.b.
1952	143	61,327
1953	516	201,248
1954	475	217,433
1955	415	167,667
1956	586	251,665

3. PATCHOULI

Interest in Patchouli reached a low ebb, growers losing interest owing to low prices. Oil from the far east is marketed at a price with which most Seychelles producers appear to be unable to complete.

Exports of Patchouli leaf and oil 1952 — 56

Year	Oil Exports		Leaf Exports	
	Kilogrammes	Rupees f.o.b.	Tons	Rupees f.o.b.
1952	2,718	187,318	40	73,971
1953	2,016	114,107	53	—
1954	273	18,514	67	270.666
1955	436	34,491	38	141,200
1956	532	27,225	9	16,013

4. Vanilla

The coincidence of high world prices and an exceptionally good Seychelles crop resulted in the most profitable season for vanilla growers (and exporters) for a great many years. Many parcels sold in London and other markets at around 50 shillings per lb. Local selling prices for cured "beans" were from Rs. 15 to Rs. 20 per kilogramme. Uncured beans, as usual, changed hands at prices giving a still higher margin of profit for the curer-exporter on a stable or rising market. There is little doubt that if curing and export was carried out centrally by a co-operative making first and final payments a far higher proportion of the value of the crop would reach growers or, at least, those who were able to resist the temptation to sell their crop outright. Owing to the fluctuations which occur in overseas market prices "first payments" by a co-operative would need to be very conservative indeed. Unfortunately, owing to local factors and the absence of a suitable Government inspectorate the risk of malpractice by the officials of such a co-operative is serious. The principal curer-exporter tended to produce beans graded "seconds" owing to inadequate fermentation and excessive drying but a number of very high quality parcels were also exported. The work of the Department is referred to in Section II.

Exports 1952 — 56

Year	Quantity Kgs.	Values Rs.
1952	5,927	79,550
1953	5,642	133,808
1954	1,370	62,000
1955	522	16,380
1956	7,580	285,615

5. Other crops

A few nutmegs and coco-de-mer nuts were exported, the number of the latter being higher than in recent years owing to the conclusion of the planting programme in the Valfé de Mai. Apart from these, "other crops" are grown solely for local consumption. They include bananas, manioc, sweet potatoes, breadfruits, tropical greenstuff and cucurbits (spinaches, pumpkins, cucumbers, etc.) and other vegetables and fruits, including eggplant, chinese cabbage, mangoes, limes etc., tobacco, sugarcane and coffee. In addition, small plantings of numerous other crops can be found, including the temperate-climate vegetables preferred by the small minority of the population who have European food habits.

A falling-off in the sales of (Government-produced) "bacca" (fermented sugarcane juice) affected canegrowers. Tobacco growers, however, had a profitable year as the result of an increase, late in 1956, of the import duty. Both the usual air-dried plug-cured tobacco and also the flue-cured product (produced by one estate) are very acceptable substitutes for the imported articles and an expansion of production can be expected.

Reference to the work of the Department will be found in Section II.

B. Animal Husbandry

LIVESTOCK

No widespread increased interest in cattle-keeping can, unfortunately, be reported but there were signs that the excessive slaughter which resulted from the return of Royal Pioneer Corps personnel had slackened. The bulk of the population were, once again, content to rely largely on fish for their protein food. A number of the more progressive landowners purchased first-cross Sindhi X Friesian heifers and large white pigs (the latter for up-grading local animals) from the Department. Coconut press-cake was in good supply and imported maize meal and bran continued to be available. No epidemics or serious losses occurred in cattle, pigs, poultry, or other livestock. Fowlpox is endemic.

C. Fisheries and Sundry Produce

1. FISH

The main bulk of sea fish in the area continued to be taken by large Japanese tunny-ships, using electrically-lit power-hauled long-lines, echo-sounders, plankton-counting arrangements, water temperature indicators, current charts, and other devices. Apart from occasional dues when these vessels came in for medical help, and the small profit made from purchasing a few sharks' fins from crew members for export, Seychelles derived no financial or other advantage from the thousands of tons of prime fish taken away by the Japanese.

The owners of the Seychelles Cold Store stopped refrigerated storage early in the year, to the disadvantage of those fishermen who depended, occasionally, on refrigerated mackerel as bait for hand-lining. That supplies of cold-stored mutton, etc. also ceased was, agriculturally, an advantage though deplored by the section of the community which makes itself most heard. The Cold Store company, and the owners and tenants of a number of islands, continued to increase exports of dry-salted fish, shark, and shark fins. The ex-C.D.C. driers were in use continuously, though whenever conditions allow it is found more economical to sun-dry on slatted, or other, platforms. It must be emphasised, however, that the old-established local fish-curing enterprise does not, and cannot, draw on the vast stocks of migrating tunny exploited by the Japanese. A well capitalised fleet, based on a cannery in Seychelles, seems to be an obvious development yet no serious interest by private enterprise has, as yet, been reported.

Supplies of fish for local consumption were occasionally interrupted by weather conditions.

Export of Dry salted Fish (including Shark and Shark Fins)

Year	Metric Tons	f.o.b. Value (Rupees)
1952	199	145,923
1953	97	57,866
1953	90	81,247
1955	189	159,231
1956	240	213,103

2. GREEN TURTLES

Turtles, chiefly from Aldabra, were frequently on sale from the Victoria holding pond and turtle meat was usually the cheapest meat on the market. The price of dried turtle cartilage (known as calipee) and

of salted turtle meat, was such as to encourage export. Some caret (Hawksbill) turtle calipee was also prepared and exported. The method of preparing salted meat remained exceedingly primitive, some of the meat being from those reptiles which die on the voyage between Aldabra and Mahé.

Recorded Export of Green Turtle Products

	Quantity	Value f.o.b.
Calipee	3,779 kgs.	Rs. 82,340
Dry Salted Meat	1,260 kgs.	16,760

3. Sundry Produce

Under this head are grouped those miscellaneous products which concern the Department and are not classified elsewhere. The principal non-export item is sea-birds' eggs. The following return from Customs is of recorded landings of Sea-birds' eggs at Victoria.

Frigate Island	27,200
Aride Island	85,800
Cousin Island	2,500
	115,500

Eggs landed at Praslin (e.g. from Aride Island) are not included in the total, nor are the eggs consumed on the producing islands. The harvest was small as collection from the main producing island, Desnoeufs (Crownland) was not permitted in 1956. The eggs (those of sooty tern and noddy predominate) sold at from 2½ to 3 cents of a rupee each, retail, in Victoria.

A valuable report containing a detailed record of, and commentary on, available information, a record of trials and observations, and conservation recommendations, was received early in the year from Lord Richard Percy and the Hon. Matthew Ridley following their investigation of the industry in 1955. It was considered by the Agricultural Board. Draft legislation covering the investigators' recommendations was submitted to Government in mid-1956.

Sundry export produce included ground phosphatic rock, sea shells, giant tortoises, coco-de-mer, and tortoise shell. Phosphatic rock sales recovered from the low level of 1955 but were still far below the tonnage of a few years ago. Sea shells (chiefly *Turbo* for the button and other manufacturing trades) were much sought after, land tortoises (of the giant species) were declared at the remarkably low average f.o.b. value of around Rs. 50 each, Coco-de-mer nuts (bought by India for various uses in native "medicine" etc.) were in larger supply owing to the conclusion of the Government planting scheme in the Vallé de Mai nature reserve, and tortoiseshell (from Hawksbill turtles) continued to fetch the low prices which have prevailed for some years. Neither doubloons nor pieces-of-eight figured in the export list, and it is probable that some of the harvest of the sea and distant islands finds its way to E. African and other ports without coming to the notice of Customs. Such is known to be the case with some sea-shells.

Recorded Exports of certain Sundry Produce

	Quantity	Declared Value f.o.b.
Guano and phosphatic rock	4,188 tons	Rs. 144,539
Coco-de-mer	3,166 nuts	7,097
Sea Shells	27 tons	44,784
Tortoise Shell	364 kgs.	730
Nutmegs	120 kgs.	720
Giant Tortoises	49 tortoises	2,043

D. Forestry

The Forester reports as follows on the activities of the public:

"There was evidence in Praslin of increased interest in the formation of littoral Casuarina equise ifolia (Cedre) plantations, stimulated it is believed by the splendid example set by one planter who has very successfully combined his Cedre plantation with a vanilla plantation.

The results being obtained from the pilot scheme "Colonisation Pit Method" for very infertile areas as practised on the bare eroded hills of Newcome have led to enquiries from the public and the method was demonstrated on an estate in N. E. Mahé together with anti-gulleying measures.

Interest in Breadfruit plants raised in Sans Souci nursery increased and a few firm orders were received. These plants are capable of producing fruit within 2 — 3 years and are a very worthwhile investment costing only Rs. 1.50 per plant.

It has also been observed that the practise of cleaning "fougere" (Bracken fern) from scrub cinnamon bush is gaining increasing favour and this practise must ultimately greatly assist both the recovery of individual cinnamon specimens choked in this fern and also greatly facilitate increased natural vegetation".

E. Pests, Diseases, and Vermin

The work of the Department is referred to in Section II. In the 1955 Report there was a detailed review of the extent to which crops are affected in Seychelles. No new pests, diseases, or vermin were observed to be attacking economic crops or animals in 1956. The Eddy Wasp parasite of Citrus Black Fly (introduced by the Department in 1955) became firmly established. Control of Buffalo Fly by toxaphene was achieved wherever cattle owners availed themselves of supplies offered by the Department at non-profit prices. The *Scolia* wasp parasite of the coconut pest *Oryctes monoceros* became firmly established on North Island.

The price of locally-consumed produce being geared to the low local wage-rates the widespread use of imported materials for the control of pests and diseases cannot be expected. For example in Seychelles, where a tender "poussin" costs a mere eighteen-pence, the modern poultry remedies in vogue in Europe, where the end-products of the poultry-keeper's efforts fetch fifteen or twenty shillings, are doubtfully economic. Such biological controls as can be maintained or introduced are, at present, by far the most practical.

SECTION II.

The work of the Department of Agriculture

In 1938 four senior technical officers (i.e. with at least some overseas technical qualification, however modest) were employed by the Department. The receipts from plantations and forests operated by the Department in that year are recorded as having been, in round figures, one thousand rupees During the post-war years receipts by the Department and its off-shoot "Grand'Anse Estates" have ranged between Rs. 300,000 and over half a million rupees, and the number of technical officers has never exceeded four, inclusive of "Grand'Anse Estates" employees. The local selling price of copra in 1938 was around Rs. 90 per ton, as compared with around Rs. 700 in recent years. Using copra as a yard-stick it will be observed, therefore, that with the same senior technical staff the Department's direct production and sales-by-tender are now some forty times higher than in 1938. Total revenues, including Crown land rents and guano royalties, were balanced with expenditure at around Rs. 30,000 to Rs. 40.000 pre-war, while they now balance at around half a million. In both cases expenditure on Development Schemes is excluded. Pre-war, direct production earnt around 2% of revenue, while in recent years it earnt around 40%.

As reported, perhaps ad nauseum since 1953, the effect has been that the Department's technical officers have little time to spare for investigations, trials, extension activities, supervision of leased Crown land, and services in the interests of producers. The closing down of "Grand'Anse Estates" provided some relief but only an extensive programme of leasing and of exploitation by tenderers or licencees can enable technical officers to concentrate on the work for which they were trained, if, as can be argued, the outright sale of Crown land is undesirable. The direct operation of land by a Government Department, or by a pseudo-commercial off-shoot of one, is difficult to justify except in the case of forests, trial grounds, demonstration areas, and the like, of a size appropriate to that of the country as a whole.

1. Crown Lands

The area of Crown land remained unchanged during the year, apart from transactions relating to small township areas. In the majority of cases the areas are "reputed" and the total can be given only approximately as 15,000 acres, with some 7,000 acres out of the total unleased. Almost the whole of this unleased area can serve useful purposes, either as catchment areas, productive forest, leasehold smallholdings or, on the small scale appropriate to the size of the Colony, for demonstrations, trials, and the raising of livestock and planting material.

Neither re-afforestation nor the settlement of smallholders can be rushed and the Department continued meanwhile in direct charge of large areas of land under a cover of coconuts, cinnamon, and scrub which are destined for eventual lease or re-afforestation. From this land the crops of coconuts, and yields of cinnamon and forest products, were either sold by tender or, where this was not immediately feasible, converted by Departmental labour.

On the taking over of the lands and installations operated by the now defunct "Grand'Anse Estates" a decision had to be made as to where permanent Departmental demonstration and trials stations should be developed. The choice fell on the coastal area of Grand'Anse and Union Vale Estate — with the assumption, as regards the latter, that a reduction in milk retailing would eventually permit disposal of part.

Among the activities on Crown Lands still being engaged in by the Department at the year's end, but due for terminating as soon as possible, were commercial-style cinnamon leaf-oil distilling, sugarcane growing for Bacca (fermented cane-juice) production and retailing, milk-retailing, copra production at Foret Noire and Anse Boileau estates, the Anse Louis Old People's settlement, etc. It is only as and when these activities can be dispensed with that other more useful activities can be engaged in on Crown Land with the very small staff of trained men which can be afforded.

(a) Direct Production on Crown Lands

Coconuts: Coconut stealing was reported from most areas. The number of nuts collected from the estates concerned was in all cases below the 1955 figures, but owing to non-occupation by Government of approximately half of Ste. Anne throughout the whole year (as compared with only part of the year 1955), further leases at Anse Boileau and Foret Noire. and and a number of fellings of Melittomma infested trees at Grand'Anse, Curieuse, and on Praslin Crown lands exact comparison is scarcely possible. All palms on Curieuse were numbered, Melittomma treatment was completed, and crop-on-tree recorded, Long Island was cleaned throughout, cleaning proceeded on the portion of Ste. Anne still occupied. The driers at Grand'Anse, Anse Boileau, Foret Noire and Curieuse performed satisfactorily. The Curieuse Manager was transferred to Ste. Anne and the new Manager at Curieuse was replaced. The guardians on Long Island and at Abondance were replaced.

Coconut collection and Disposal from Unleased Crown Lands

Origin	*Nuts collected*
Grand'Anse	215,146
Anse Boileau	310,743
Foret Noire	152,767
Union Vale	46,150
Ste. Anne Island	236,852
Minor Mahé Crown Lands	17,411
Praslin Crown Lands	15,961
Curieuse Island	182,052 *
Long Island	10,565
	1,187,647

* including 39,277 nuts from the Leper Settlement, formerly not collected by the Department.

Disposal of Nuts

Stock 1.1.56	94,980	Converted into Copra	955,156
Collection 1956	1,187,647	Sold & free Issues	317,524
Purchases	12,594	Bad Nuts	2,372
		Stock 31.12.56	20,169
	1,295,221		1,295,221

Copra Production and Disposal

Stock 1.1.56	4,239 kgs.	Consigned for export	135,286 kgs.
Production 1956	141.333	,, ,, Milling	2,432
		Sold by Tenders (2nd. Grade)	4,183
		Stock 31.12.56	3,671
	145,572		145,572

Conversion Rates

	Average of nuts per ton of Copra
Grand'Anse	6,122
Anse Boileau	6,528
Foret Noire	6,289
Curieuse Island	7,585

Cinnamon : Cinnamon was sold by tender (see Forester's Report) except at Grand'Anse, where 263.6 tons of leaves were harvested by estate labour on piece-work and distilled on the estate. The yield of 1,539 kgs. of leaf oil represented a yield of 5.8. kg. per ton, which was the same as in 1955. Much of this Grand'Anse leaf was from low-altitude cinnamon which tends to have a low oil-content per ton. It is of interest (though the matter does not strictly concern the 1956 report) that over a nine weeks period in early 1957 the Department's Central Distillery at Mamelles Crown land (opened for unemployment-relief in Victoria) showed average yields of 6.9 kgs. per ton for leaf from Union Vale and average yields of 9.5 kgs. per ton for leaf from Rosebelle Estate, the latter being a high-altitude estate in a "mist-forest" type of climate. The Central Distillery is more efficient than that at Grand'Anse which was purchased by Government sixteen years ago from a defunct planting company and was closed at the year's end pending disposal. 29.2 tons of dry unscraped cinnamon bark were prepared at Grand'Anse from 56.8 tons of fresh bark harvested by Departmental labour on piecework.

Sugarcane : The area of cane was reduced by the leasing of land for smallholdings at Foret Noire which included areas of this crop. Owing to the greatly reduced demand by the Government liquor shop in Victoria harvesting fell to 154 tons, compared with 360 tons in 1955. 66 tons of this quantity were milled at Grand'Anse for Departmental retailing of the fermented juice there and at Anse Boileau.

Foodcrops : Apart from the produce of small citrus plots at Grand' Anse and Souvenir Estates, of numerous breadfruit trees, and of a few fruit-trees, Departmental food crop production on Crown lands was, from May, restricted to a small garden at Sans Souci. The vastly increased interest of many Departmental labourers and smallholder tenants in food-growing as soon as Government produced crops were no longer available was an expected and desirable result.

Livestock : Activities are referred to in Section II (3).

Forestry : See Forester's Report.

Works, buildings, and equipment : Although the assistance of the Public Works Department could be called in over such matters as repairs to distillery, lorry, tractor, and major building works etc., the Department remained responsible for carrying out repairs to labourers' cottages and much other minor work, and for supervising petty contracts. So far as

possible, repairs and renewals at all stations except Union Vale, Grand Anse Coastal Area, and the Botanical Gardens were kept at the bare minimum. The Department had charge of works, buildings, and equipment at Botanical Gardens, Union Vale, Les Mamelles, Les Canelles, Anse Boileau, Grand'Anse, Foret Noire, Sans Souci, Le Niol, Souvenir, Long Island, Ste. Anne, Abondance, Gardener's Estate, Vallè de Mai, Newcombe and Anse Louis. A change from routine repairs was provided by the construction of simple but adequate temporary palm-leaf structures at Anse Louis beach for the picnic lunch given there by His Excellency the Governor for His Royal Highness Prince Philip and party.

(b) Gardens and Sports Grounds

The Mt. Fleuri Botanical Garden was kept tidy and composting arrangements improved. Many sloping shrub beds were converted into saucer-terraces to permit adequate top-dressing. There was a hatch of of giant tortoises in the pen. On the occasion of the visit of the American cruise-ship "Caronia" special displays were arranged. Thanks to the co-operation of a local resident (Mr. McConnell) many hitherto unidentified specimens were named in preparation for the labelling which the gardens have lacked for so many years. H. R. H. Prince Phillip honoured Seychelles by agreeing to plant a Coco-de-mer during his brief visit and a large gathering watched the ceremony. Many members of the public availed themselves of permissions to take cuttings or off-sets from the Gardens without charge. Government House gardens Fiennes Esplanade and Garden Square were kept adequately tidy. Additional terraces were constructed in Government House vegetable garden. The College employed and supervised its own groundsman. Labour was supplied to the Hospital for work on the ornamental garden,

(c) Demonstration Areas on Crownland

Union Vale Estate remained a useful demonstration of attainable standards of dairy, pig, and poultry husbandry. The Public Works Department completed additional cottages (of their design, in all-wood construction on masonry foundations, thatched) and continued essential work on the cowsheds. When occasion offered some of the more useless coconuts (on unsuitable land and damaged by toddy-tapping in the past) were felled. A boundary was defined. Excellent crops of maize and elephant grass were grown for ensilage on many acres of bench-terraced land and these formed an ideal demonstration of the combined effect of terracing and animal husbandry.

Grand'Anse Estate (formerly a compromise between a "model" large estate, a trials area, a source of cheap food for Victoria, a source of sugarcane for the Government liquor shops in Victoria, etc.,) was, so far as the coastal area is concerned, in course of transformation into a demonstration of good coconut cultivation associated with cattle, with, when funds are available, separate areas for trials and a demonstration small-holding. Though virtually without funds for the purpose a small start was made with trials. The estate does not yet claim to possess a demonstration area worthy of the name.

Other activities on some Crown lands serve, incidentally and as required, as demonstration areas.

(d) Leased Crownlands

No new large areas were leased during the year. The Leasehold Smallholdings Scheme supervised by the Department showed further

evidence of being likely to develop — if permitted to do so — into the most important means of agricultural improvement which the Colony has so far known. The Scheme visualises the creation of a class of Crown tenants who, by the terms of their leases, by the example of their fellows (several of whom are ex-foremen from the Department, ex-N.C.O's of good character, etc.), and by supervision and the provision of advice, will engage in mixed husbandry with emphasis on the growing of crops for local consumption. The fate of similar areas of land if sold outr ght is known all too well: the owners would plant coconuts wherever these could survive and/or cultivate unmanured foodcrops on eroding slopes, the plots becoming fragmented and of uneconomic size or subject to the dead hand of "undivided ownership" by the laws of inheritance. The Scheme now includes six 10 acre holdings (leased in 1953) and twenty seven 5 acre holdings leased at various dates up to late 1956. All restrictions on the sale of produce by tenants were removed in March, 1956, this relief from marketing through the Department being appreciated by all concerned except those Victoria consumers who had benefitted by the hidden consumer-subsidy which had operated. There was no relaxation of control over the choice of crops, a control which is designed to discourage too extensive reliance on non-food crops. Terracing was required of tenants on all sloping land destined for regular arable cultivation, the lay-out being by the Agricultural officer or his helpers.

Recent leases provided for nine rather than three months notice, the longer period corresponding with the longest-term annual crop normally grown. Every tenant had his own special problems during the year, shortage of fodder for livestock being more or less general due to understandable but short-sighted reluctance, in the early stages of occupation, to spend time on praparing land for, and planting, elephant grass. The Department having had long and successful experience with fodder-growing, both on terraces and on the flat, was able to advise on this matter with complete confidence. Almost every crop capable of being grown in Seychelles was to be seen on one or another leasehold smallholding in 1956, some growers wisely specialising in those in whose cultivation they were experienced and for which their land was suitable. One man was the proud producer of the finest cabbages (carefully sprayed against pests) which the writer has seen, another of a crop of tomatoes which paid the rent twice over, others — with less gardening knowledge — specialised in sweet potatoes until, by chatting over the fence with more expert neighbours, they could learn how to vary their cropping with carrots, cucumbers, chinese cabbage, snake-gourds, egg-plants, or other crops. Most purchased at least some seeds from the Department, but successful crops from home-saved lettuce, carrot, etc., were also grown. Supplies of compost from vast heaps of rotting "spent" cinnamon leaves from the distilleries of large private estates not accustomed to return fertility to the land were purchased by some smallholders, an event of some significance.

2. Forester's Report

Progress

For the second year running adverse weather conditions prevailed during the major period of the S. E. Monsoon. This monsoon came in early and blew vigorously and constantly until well into November — in addition rainfall proved to be less than average and at one period an almost unbroken three months drought prevailed. Nursery water supplies at Sans Souci and Le Niol were seriously affected and large stocks of seedlings suffered a partial check as a result.

Plantations on exposed ridges were defoliated early in the monsoon by the stronger than average winds, and remained so more or less until quite late in the monsoon.

Acreage fell slightly short of the target, due, mainly, to the more difficult terrain encountered, — there being considerable areas of very thick fern, which in some places exceeded seven feet in height. In addition, densely compact fern root mattresses occurred which often covered the soil to a depth of over 3 feet.

The preparation of this type of land for planting proved to be considerably more arduous, expensive, and slower than hitherto experienced. 235 acres were ultimately planted up during 1956, bringing the total acreage since the Re-afforestation Scheme commenced to 1994 acres.

Losses from direct sowings were heavy, but considerably less than those suffered during 1955, and were mainly confined to the more infertile and exposed ridges where the destructive effects of prolonged dry spells and incessant wind had greatest effect.

No bush fires in or immediately adjoining forest plantations were experienced, though forest labourers and supervisory staff turned out on several occasions to combat fires on other Crown lands.

In September, Forest Ranger Moulinie proceeded to U. K. to commence a 2 years Forester's Training Course with H. M. Forestry Commission, this being the first step towards a planned continuity of trained staff for future management of the forests now being established. Mr. Moulinie is the first Seychellois to have embarked upon specialised forestry training.

The increasing use of short-cuts through plantations by the public resulting in damage to trees and the creation of eroding gulleys necessitated the employment of a patrolling guardian, after previous attempts to persuade the public by means of "Trespass" notices and light fences resulted in the wanton destruction of such measures by persons unknown. No further damage has since been reported.

Sylviculture

Relatively good weather conditions were experienced both before and after the S. E. Monsoon, thus despite the adverse weather prevailing during the S. E. Monsoon, the effect on established plantations was not very serious and in most areas quite satisfactory growth has been observed.

The exceptions were, as stated earlier, exposed ridges of semi-eroded poor soil where the battering effects of a constant and relatively strong salt laden wind, and prolonged dry spells, resulted in a very definite check in growth. There is little doubt that it will take considerably longer than previously envisaged before a really effective forest cover can be established on such sites even though, in such areas, the original density has been increased by interplanting or intersowing.

By way of contrast, plantations enjoying less exacting sites have continued to show good progress and from some of the earlier formed plantations limited quantities of saleable pole thinnings and cordwood have been forthcoming — mainly from Albizzia, Agati, Santol, Badamier and Sangdragon.

It is of interest to note that plantation specimens of the following indigenous species have begun bearing seed.

Agati	(Adenanthera pavonina)	1954
Badamier	(Terminalia catappa)	1955
Santol	(Sandoricum indicum)	1956
Albizzia	(Albizzia molucanna)	1954

Sangdragon plantations, in particular, appear to have found the weather conditions of 1956 to their liking and there has been a very marked improvement in the growth of this species generally.

Pilot mulching experiments carried out upon very exposed sites did not give any conclusive results due mainly to the difficulty experienced in stabilising the mulch which, even though pegged, tended to become scattered by the wind within a week or two of being put down. Where it was possible to stabilise the mulch, however, a marked improvement was observed by the close of the S. E. Monsoon. Further experiments in this direction are intended for 1957.

Colonisation pits continue to give encouraging results at Newcome and on a private estate at N. E. Mahe where pits commenced and sown in March successfully weathered the particularly dry S. E. Monsoon.

Further impetus will be given to this work at Newcome, Praslin, where considerable areas of steep and badly eroded lateritic soil await treatment.

Experimental Introductions

During the year, small consignments of seeds of the following species were obtained for trials :—

1. *Intsia bakeri* (*Moluccan Ironwood*) *Malaya*

This species is related to Gayac and yields a very similar timber but is considerably faster growing. Under optimum conditions it is capable of reaching a height of 140'. The seeds of this species, which were received in October, showed almost 100% viability and the seedlings have made considerably faster growth during the early stages than any other species encountered to-date.

2. *Clorophora excelsa* (*Mvuli and Iroko*) *Tanganyika*

This well known African timber will be a very valuable addition to our range of home grown timber if it proves successful here. The timber is of excellent quality and is very durable. Specimens of this species frequently reach very large proportions — often 150′ or more in height and up to 9′ in diameter in its native habitat. Germination has been good, and several hundred seedlings were obtained which have to-date shown strong healthy growth.

3. *Khaya nyassica, senegalensis, and Ivorensis*

Seedlings obtained from a small quantity of the seed of Khaya nyassica and Khaya senegalensis obtained in December 1955 have shown spectacular growths — the average height of a small mixed plot in the arboretum being over seven feet when measured in December 1956. The seed of Khaya ivorensis obtained from the Ivory Coast failed to germinate.

4. *M'lanji Cypress* (*Widdringtonia whytei*)

A small quantity of seed of this species was received from Nyasaland in 1956. It germinated well and several hundred seedlings have been obtained. This species is being reserved for experimental plantings (in admixture with suitable indigenous species) on the higher sites, where it is hoped it will adapt itself.

5. *Pinus species*

Small consignments of seeds of Pinus insularis, (Manila) Pinus merkusii (Indonesia) and Pinus caribea (British Guiana via South Africa) were received for trial during the year and good germination was obtained from all three species. Unfortunately, despite the promising start, growth has subsequently checked and all but a few of the resultant seedlings have succumbed. It is believed that the absence of mycorrhiza is the chief cause of failure with pinus species and steps are now being taken to obtain a suitable innoculum by the kind co-operation of the Chief Sylviculturist, South Africa, before continuing with any further trials.

6. *Tectona grandis (Teak)*

A small consignment of seeds of this species received from Trinidad germinated well. The seed has been obtained from a strain of Teak introduced into the West Indies towards the close of the last century and since proved to be of a remarkably fine strain, possessing a superior average stem-form, while its timber is reported as being equal in quality to the finest Burmese Teak. A semi-maritime strain of such a valuable species as Teak would be a very worthwhile addition to our range of homegrown timbers, should it prove adaptable to local climate and soil.

7. *Ochrama lagopus*

A specimen of Ochroma lagopus (Balsa) sited in the Sans Souci arboretum commenced flowering early in the year and produced the first seeds in April. These seeds germinated well.

Several seedlings raised from them were planted out in the arboretum on 30.7.56 and by the close of the year were approaching 2ft. in height. Timber samples taken from a three year old specimen which had suffered severe crown damage were sent to two firms in the U. K. for trade opinion and were very favourably commented upon. It is doubtful, however, whether this particular species will ever be of any great economic value to the Colony despite its remarkably quick growth (seven years rotation) and relatively high market value, due to its rather exacting soil requirements. The arboretum specimen approximately 4 years old, which is growing on a moderately fertile site, measured approximately 30 ft. in height and 28″ G. B. H. on 31.12.56.

8. *Various*

The arboretum specimen of Gmelina arborea also came into flower during October, but no signs of seed formation have yet been observed.

A few seeds were also obtained during the year from a very much earlier introduction of Swietenia mahagoni — believed to have been planted in the Botanical Gardens approx. 40 years ago by a former Curator of Botanical Gardens, — Mr. Dupont. Several pods were obtained and the seed sown, but viability proved to be rather poor and the resultant seedlings are somewhat lacking in vigour when compared with the results obtained from an earlier consignment of imported seeds of this species.

Vanilla Trial Plots

In general the progress of these trial plots may be said to be quite satisfactory and no trace has yet been found of the disease which caused this crop to be abandoned in Mahé many years ago. As all vines used have been obtained from "escapes" of cultivated vanilla found growing wild in the scrub forests of Mahé it is just remotely possible that such vines may be immune to the disease, but no evidence to this effect is available.

Santol would appear at present to be the least favourable of the tree species tried, due, as far as can be ascertained, to the heavy shade it produces in early thicket stage. This condition will improve as the trees become older and taller, when the greater distance between crown and forest floor will admit considerably more side light.

Sandragon, Takamaka, and Agati appear to have given the best results to-date, Though it is possible that Sandragon and Agati, being leguminous species, may have something extra to offer, it is felt at present that the growth of vanilla is dependent to a much larger extent on soil and light and shade conditions than to the species of the support on which it grows. The years 1957 and 1958 should provide adequate evidence as to whether vanilla may be developed successfully on a large scale in forest plantations, meanwhile current progress leaves much room for optimism. Several hundred beans have already been marked in sample plots.

Selective Herbicide Trials Results

There is little doubt that Tecane, the selective grass control herbicide used in last year's gazontraille control experiment, is highly efficient and the results obtained leave little to be desired. The experimental area was treated in May 1955 and effective control was obtained within a few days until mid-February 1956 when gazontraille (Panicum parviflorum) commenced to recolonise the area. Chemical control is obviously more effective than hand labour but is also considerably more expensive per acre to apply. Thus the point of issue tends to revolve around the relative cost of hand versus chemical weeding. Though the rate of applications for the experiment were relatively heavy, being those recommended for spot treatments, and an application of only 25 lbs. to the acre supported by pre-and-post-application hoeings might still have effective results — the cost of such treatment would continue to exceed the cost of control by hand labour over a similar period.

Thus it would appear that until Tecane can be produced more cheaply or the cost of hand labour rises above the cost of chemical control this particular herbicide cannot at present be considered an economical proposition. A second factor weighing against the introduction of herbicides at present, even if available at a rate which made their application comparable to manual labour costs, is the high rate of unemployment currently prevailing. Unless chemical control could be affected with a very appreciable saving over the cost of hand labour there is little to recommend it at present.

Newcome Forest Praslin

A further extension of the "colonisation pit" treatment for badly eroded lands was carried out at Newcome, Praslin, in view of the most encouraging results this method has given to-date and a considerable increase in this sphere of activity is envisaged for 1957.

Both staggered pits and continuous contour pits have been tried with equally good results.

Contour pits, by virtue of the larger colonising stocks they can contain, would appear to possess the advantage of ultimately establishing a complete soil cover earlier than can be achieved by staggered pits, but cost a little more to install.

The policy of establishing mixed plantations, rather than adhering wholly to block monoculture is showing its value in the forest plantations at Newcome where in one or two mixed plantations, small areas of Bois Noir (Albizzia lebbek) and Badamier (Terminalia catappa) have found conditions not to their liking and checked. The remainder of species in the admixture have continued to flourish however, and an affective soil cover has been maintained.

In general, Newcome presents a very refreshing picture and has to-date more than fulfilled expectations from what is a relatively low fertility eroded area.

Valle de Mai, Praslin

The restocking of this famous valley with Coco-de-mer and other endemic palms is now complete except for the replanting of any blanks that may result where Coco-de-mer or other palms have failed to germinate.

Germinating and young palms may now be seen throughout the area, but it will take many more years before the value of this restoration work will be readily apparent, due to the relatively slow growth of the Coco-de-mer in particular. Meanwhile it is a pleasant thought that the safety and future of the Vallé de Mai is now assured and its botanical interest and scenic value will grow from year to year.

In addition to general maintenance, work on the amenity belt which is being established to encircle the upper rim of the Vallé de Mai was continued when possible throughout the year and considerable progress was made, over one third of the belt having been completed.

Vandaliam

Several instance of wanton damage occurred during the year, but on a markedly reduced scale as compared with 1955. Damage was in the main confined to uprooting portions of post fences and destroying signboards. Actual plantation damage was negligible. Towards the the close of the year severel hundred potted tree seedlings in Sans Souci nursery were upturned and stamped upon. This particular instance is believed to have been an act of malice by a dismissed worker.

Since the recruitment of a patrolling forest guardian subsequent acts of vandaliam detected in the field have almost ceased.

Acreage and Species Planted in 1956

	Sans Souci	Grand'Anse	Le Niol	Newcome
	Acres	*Acres*	*Acres*	*Acres*
Santol (Sandoricum indicum)	$12\frac{1}{2}$	$35\frac{1}{2}$	10	—
Takamaka (Calophyllum inophyllum)	55	61	12	—
Calice du Pape (Tecoma Leucoxylon)	3	$5\frac{1}{2}$	3	—
Central American Mahogany (Swietenia macrophylla)	17	$1\frac{1}{2}$		—
Bois de Nate (Mimusops species)	3	$1\frac{1}{2}$	$\frac{1}{4}$	—
Sangdragon (Pterocarpus indicus)	1	2	1	—
M'Vuli (Chlorophora excelsa)	2	$1\frac{1}{2}$	$\frac{1}{4}$	—
M'Lanji Cypress (Widdringtonia Whytei)	—	$\frac{1}{4}$	$\frac{1}{4}$	—
Nyasaland Mahogany (Khaya nyassica)	$\frac{1}{2}$	$\frac{1}{4}$		—
Senegal Mahogany (Khaya senegalensis)	$\frac{1}{4}$			
Moluccan ironwood (Intsia bakerii)	$\frac{1}{4}$	$\frac{1}{4}$	—	—
Balsa (Ochroma lagopus)				
Spanish Mahogany (Swietenia mahagoni)				
Colonisation pits (Calophyllum inophyllum)		—	—	5
(Chrysobalanus icaco)		—	—	5
	$94\frac{1}{2}$	$108\frac{1}{2}$	27	5

Total 235 acres

Summary of Forest Produce 1956

Timber (Running feet)

Kind	Planks	Madriers	Beams	Posts	Rafters	Rondins
Albizzia	29,714	33,901	—	—	—	—
Badamier	4,180	59	—	—	—	—
Agati	13,407	6,688	—	—	—	—
Bois Rouge	7,459	—	—	8,722	—	—
Santol	2,134	3,460	—	8,678	128 units	—
Eucalyptus	1,046	12,959	773	24,256	—	1,548
Sandragon	1,451	2,871	—	—	—	—
Capucin	—	—	—	1,740	—	—
Takamaka	437	696	—	—	—	1,084
Calice du Pape	28	—	170	402	—	—
Cedre	2,598	2,011	821	4,537	—	—
Bois de Table	—	—	—	—	2 units	—
Breadfruit	1,252	—	—	—	—	—
Bois Marrais	—	—	—	147	—	—
Kiboko (Parkia sp.)	354	—	—	—	—	—
Jak	56	—	—	—	—	—
La Fouche	54	—	—	—	—	—
Acassia	1,069	—	—	—	—	—
Jamblon	83	—	—	—	—	—
Miscade	34	—	—	—	—	—
Gayac	—	207	—	—	—	—
Grand Total	65,356	62,822	1,764	48,482	130	2,632

Other Forest Produce

Cordwood	847 cords (Approx. 423 tons)
Cinnamon Leaves	625 tons (362 tons by tenderers)
Green Cinnamon Bark	74 tons (by tenderers)
Dry Cinnamon Bark	29 tons (by Departmental Labour)
Capucin Charcoal	1,971 tins (,, ,, ,,)
Mixed Charcoal	826 tins (,, ,, ,,)
Latanier Leaves	4,900 units(,, ,, ,,)

All sawn timber was produced by piece-workers employed by the Department. Cordwood was produced partially by Departmental employees and partially by prisoners. The contribution made by C. D. & W. Re-afforestation Scheme staff consisted of occasional pre-re-afforestation felling (paid for from Scheme votes) and the supervision by the Forester and his staff of all conversion and disposal. Scheme funds were not actually used on conversion. The Forester also supervised the sale by tender of Crown land cinnamon etc., and most aspects of work on Crown forest land.

E. F. BREWER,
Forester.

3. Veterinary work and Livestock

The stock Inspector, Mr. Donald Morgan, continued to be available to the public for advice and veterinary treatment when his supervisory duties at Union Vale livestock station and Dairy, and in connection with animal quarantine and other official work, permitted. The Agricultural Officer (Mr. Serge Savy) had, among his other responsibilities, the duty of supervising Government livestock work in West Mahé.

Veterinary and Quarantine work

The Department continued to operate its clinic at Union Vale, charging nominal fees and giving free treatment on presentation of a certificate showing inability to pay. Mineral salts, medicines, and sundries were sold at a small percentage over landed cost. Full transport rates were normally charged for visits. The usual range of diseases, accidents, infestations, etc. was encountered and the Stock Inspector, who has not had the training of a veterinarian, did, in fact, more or less perform the duties of one. In addition to minor dressings he carried out the following :

Clinical examinations	410
Burdizzo castrations	15
Open-method castrations	26
Hormone caponisation	15
Ovariotomy (cats and bitches)	3
Other minor operations	18
Fowlpox vaccinations	52
Smears	10
Faecal examinations	12

The Quarantine Stations at Hodoul and Long Island were maintained and inspected and from early in the year a new quarantine station for small animals was put into use at Union Vale. For a short period special quarantine arrangements were maintained at the Central Police Station for two police dogs imported from E. Africa. The following animals entered quarantine during the year : 4 dogs, 2 monkeys, 1 cat. Certification was provided in connection with the export of 47 land tortoises, 1 dog and 1 cat.

Stock and Husbandry Improvement work

As regards poultry and pigs the Department's activities are now solely in the interests of stock and husbandry improvement, in comparison with the situation some years ago when Government was engaged in attempts (doomed to failure by the depressed market for animal produce and the high cost of "red tape") to demonstrate profitable commercial-style pig and poultry husbandry. The Department now concentrates on raising improved livestock and selling the animals at the price they will fetch at open auction, and on having simple but satisfactory equipment in use and available for inspection. The following poultry and pigs were disposed of during the year from the breeding stocks :

36 piglets
45 doz. hatching eggs
21 pullets.

When there was insufficient demand by poultry keepers eggs were supplied to Government institutions for consumption.

As regards cattle, the composition and size of the Department's herds and the time which can be given by qualified staff to stock and husbandry improvement work were still affected by the fact that the Department is expected to be Victoria's principal milk producer and retailer. Bulk sale of surplus milk to the Hospital and to a retailer and concentration on raising stock and visiting stockowners rather than keeping up milk supplies would be the logical answer from the Department's viewpoint. As fresh milk is a luxury beyond the means of labourers at anything near its economic cost of production the Department's milk, which was not generally available at a subsidised price, went chiefly to the better-off residents of Victoria. The price, delivered, was slightly cheaper than that at which reconstituted full-cream milk could be made from milk powder at retail price.

However, the herds (totalling 233, a figure one less than the previous year) made their contribution towards both the meat supply and the aim of better livestock in private ownership, the following animals being disposed of by auction :

18 for improvement stock
13 for slaughter.

All the Department's livestock, apart from stud bulls stationed at Anse Boileau and Sans Souci and one private estate, were concentrated at Union Vale, Grand'Anse and Souvenir (a small hill-station between the aforementioned).

It being generally agreed that siring with the high-yielding breed is preferable to the opposite (the policy forced on the Department in the early years of the programme as a result of the importation of Friesian heifers to provide supplies of milk for Victoria), as it is clearly less of a problem to look after a few European bulls than a shed-full of European cows, and as it was worth looking ahead to the time when the Department may import deep-frozen semen and dispense with pure European stock, the policy is to build up a good herd of Sindhis. This work is the responsibility of the Agricultural Officer at Grand'Anse, our only graduate agriculturist. In course of time the dairy-cow sheds at Union Vale will be stocked (if they must be stocked) with Sindhi and cross animals, no more pure Friesians (other than bulls) being imported and certainly no attempt being made to raise pure Friesians in the Colony. As, doubtless, many other tropical countries do, we look forward to the availability of a true breed which has the qualities of the Sindhi X Friesian first cross. It will certainly not be created in Seychelles. Meanwhile, continued production of crosses and the stationing of pure-bred stud Sindhis seem to be the only practicable methods for stock improvement.

Feeding policy continued to be the use of the highest possible proportion of Colony-produced feed (elephant grass, ensilaged elephant grass and maize, and poonac). Silage making in Seychelles has proved to be a reliable and efficient method of bridging the dry-season gap in fodder production and one which is far more satisfactory than attempting the cultivation of irrigated dry-season feed. A fourth pit was dug and prepared for roofing at Union Vale and the pit at Grand'Anse was completed.

Union Vale Dairy

182,165 pints were produced from an average of 58 cows in milk, giving an average annual production of 3,071 pints per animal. 19,993 pints were fed to young stock and the remainder (162,172 pints) supplied to Government institutions and retailed to approximately 240 regular

customers. All milking and dairy staff were required to be medically examined monthly and were put on other work if adverse reports were received. All milk was strained and cooled immediately it came from the sheds, bottled and foil-capped straight from the cooler, and delivered immediately. Indeed, it may be said that the standard of hygiene was superior to that of the majority of producer-retailers catering for the inhabitants of a small European village — which is, when all is said and done, what the milk-consuming public of Victoria amounts to. The medical profession being divided on the advantages of small-scale pasteurisation plants lacking stand-by equipment and the numerous difficulties involved in reliable operation of such equipment having been discussed at length, the 50 gallon plant purchased some years ago remained uninstalled and those units not already put to other legitimate use were offered for sale by tender. Many experienced residents in the tropics agreed that for a household to rely on dairy pasteurisation carried out by indigenous staff, rather than on home treatment, would be folly.

4. Produce Inspection and Laboratory work

Mr. J. F. G. Lionnet remained responsible for the inspection of produce prior to export, as laid down by law, and for laboratory work in connection with this and other duty. He was concerned with trials of insect parasites and predators and other entomological work, and was responsible for import and export certification in connection with plants and plant parts. He was on overseas leave during the greater part of the year, his responsibilities being shared between the Director and the Chief Clerk.

(a) INSPECTION : The Produce Inspector at the Customs Sheds, as in previous years, was responsible for the inspection and necessary sampling of copra, cinnamon bark, dry patchouli leaf and dry salted fish.

In general, the quality of the produce deposited for export complied with legal requirements. A few lots of copra had to be declared unfit for export. With the increase in the export of cinnamon bark more time was devoted to the examination of this produce.

Import permits for plants and plant parts were issued or refused as appropriate, after examination. Two consigments which arrived in soil were refused entry according to law, and were destroyed. One consignment of citrus fruit was disinfested and the importer charged accordingly. Most imports subject to inspection were, as usual, of cabbages and carrots from the Kenya highlands.

(b) LABORATORY : The Laboratory dealt with 703 samples of produce for export, fermented liquors, and miscellaneous items, as compared with 496 and 765 in 1954 and 1955 respectively. The control of the export of cinnamon leaf oil continued to provide most of the work, 429 samples being examined and 4 being found to be adulterated with small quantities of mineral oil.

The following table records the results of examinations of fermented liquors in recent years. These samples are the result of seizures by the police and may consist of fermented sugarcane juice, fermented coconut toddy, or liquors known as "La Purée" which may have been fermented from a variety of substances. Identification of the plant-source of starch grains, by microscopic examination of residues after filtration, was one of the tests.

	1952	*1953*	*1954*	*1955*	*1956*
No. of samples of fermented liquor examined.	222	253	275	100	238
Percentage of samples found to be "La Purée"	26.5	16.1	22.5	36.0	15.5

Germination tests of temperate-climate vegetable seeds, imported by the Department, were carried out prior to and during the period the seeds were on sale to the public. Under normal standard laboratory conditions lettuce showed a lower germination rate than when grown in seed beds. Advice was given to planters and processors and mineral samples were submitted to the U. K. for report on request by the public.

5. Inspection of Plantations

The two Inspectors (Mr. Gendron and Mr. Pool) spent part of their time on other Departmental duties. Their inspection work is concerned largely with the granting of permissions under the laws governing the felling of trees in river reserves, the lighting of fires, and the felling of breadfruit and jackfruit trees. The Inspectors also carry out valuations of crops in cases of dispute and assist the Police with yield estimations in cases of suspected illegal produce dealing. 1,757 permits to burn rubbish or make charcoal, 384 permits to fell, and 31 lime and rock burning permits were issued.

6. Investigations, trials, extension work and Sundry services in the interests of producers

Where more appropriate, these have been mentioned in detail elsewhere, in which case this is stated. The Department spent what time could be spared from its numerous direct-production activities, field and produce inspection, livestock raising, veterinary and quarantine work, re-afforestation, supervision of leased Crown lands, etc. on a few simple trials and investigations and on extension work and sundry services in the interests of producers. They are summarised below.

Pilot Scheme for Melittomma insulare control

This scheme, which is a compromise between a large-scale trial of Brown's suggested method of controlling the pest and the treatment, at the taxpayer's expense, of all infested coconut trees in Praslin remained under the field charge of Mr. J. Dookly, who was trained for this work by Mr. Brown. Work commenced in 1953 and according to estimates made in 1956 should be completed at or about the end of 1957. Before then it will be possible to survey the extent to which systematic treatment on "fronts" has been effective in reducing the incidence of Melittomma, and to plan re-treatment. The indications to date are that re-infestation in treated areas does occur but as far as can be determind no heavy build-up has taken place. Re-infestations which have been found have been dealt with.

Work proceeded more slowly in 1956, despite the employment of up to 16 men working in the capacity of foremen ("Temporary Melittomma Assistants"). These men put in a total of 3,358 man-days and supervised Scheme-paid labourers who worked a total of 39,558 man-hours, together with labour (provided by one estate only) at no cost to the Scheme. The main reasons for slow progress were (a) most treatments in 1956

Interesting and useful reports were received from both London and the continent on this consignment and it is clear that the European buyer of vanilla prefers the customary soft-cured black bean with a somewhat high moisture content, rating the dry-cured bean as 2nd. Grade. The public were kept informed of this work.

Citrus: The "Eddy wasp" parasite of citrus black fly had, by the end of the year, been distributed by the Department (or in some cases had spread unassisted) to nearly all parts of Mahe. Where the parasite had been at work for some nine months or more entirely satisfactory control of the pest was achieved and trees formerly black and sickly with the pest and the fumagine resulting from it were almost completely clean. If this early promise of success is followed by permanent control the introduction (despite the economic unimportance of citrus in Seychelles) will rank as one more success for the Commonwealth Institute of Biological Control, without whose assistance the introduction would have been unlikely. The public were kept informed.

Foodcrops : "Rain-proof" tomato varieties from the U. S. Department of Agriculture showed no resistance to the wilts which are such a serious problem in Seychelles. Australian hybrids under test for wilt resistance were imported for trial in 1957. Seed of a Puerto Rican sweet corn developed for the wet tropics was imported for trial. "Early Port" sweet potato, a yellow, low-fibre, well-flavoured variety introduced from E. African quarantine in 1956 appealed to local tastes and was distributed A number of Australian cucurbits and a melon from Portugal were tried, but none found worthy of further trial. Varieties of rice from Malaya and E. African were obtained and irrigated, bunded, plots planted from seed-beds. Despite rats and birds useful observations were made and the variety Radin Siak chosen for further trial. Conditions appear to be entirely satisfactory for rice, which may well become a smallholder's crop if the bird control problem can be solved. It is forty years since rice was grown in Seychelles.

Rats : The Cape Barn Owl introduced from E. Africa by the Department five years previousiy with a view to it assisting rat-control was observed, after several years when its survival seemed doubtful, to be breeding in Mahe. Pellets were sent to the Coryndon Museum in Nairobi for examination and found to contain indications of a diet consisting of 80% rats and 20% white terns. The economic importance of white terns is not known, but it is believed that their occurrence in the diet of the owls is of no special importance. The public were kept informed. Testing of warfarin rodenticides continued, the problems being expense and wastage of bait by mould. The sodium salt was ordered.

Forestry : The Forester's trials are referred to in his report.

Buffalo fly : Complete control — indeed, eradication as far as could be determined — was achieved in the trial on North Island of sprayed toxaphene. Diluted toxaphene dip was put on sale to the public for swabbing.

Legumes : Seeds, and innocula for, Centrosema, Stylosanthes, Glycine, and Desmodium Spp. were obtained and small trial plots laid down. Centrosema pubescens and Glycine javanica showed most promise.

Cane syrup : It was confirmed that palatable cane syrup could be easily produced, at small cost, by simple evaporation in open pans. Such syrup might replace part of the Colony's sugar imports.

were on rocky hillsides, where the terrain and the necessity for bringing soil, husks, etc. a considerable distance were handicaps (b) time was lost in a number of cases while owners were being persuaded to allow the felling of untreatable trees (c) the assistance given by landowners in the form of labour was negligible (d) it was necessary, in the interests of estate hygiene, to cut, split and burn felled trees without delay and the only means of ensuring this was by using Scheme labour. Over 4,000 fallen trees were cut, split, and burnt and some 10,000 rhinoceros beetle larvae reported to have been destroyed in the process.

By the end of the year all coconut trees on 69 estates with a total stated area of 3,823 acres had been inspected. Estates with a total stated area of 1,057 acres were in course of inspection. The actual areas were almost certainly larger, the majority of estates in Seychelles being of greater acreage than that which appears in the record.

18,979 trees were inspected during the year, 15,407 of these found infested and of these 10,594 were treated and 4,813 (chiefly "tapered" trees on poor lateritic hillsides) were felled as being too far gone, or too worthless, to warrant treatment. 195 trees which it had hoped could be saved by treatment fell as the combined result of decay due to the pest and the essential ax-work involved in treatment.

During the year it was decided that the employment of as many as 16 "Temporary Melittomma Assistants" was no longer warranted and the number was reduced before the year-end.

Investigations and Trials

Coconuts: Progress of *Scolia ruficornis* (introduced to North Island by the Department) was studied and this parasite of the coconut pest *Oryctes monoceros* was found to have become firmly established in a large "plateau" of open-planted coconuts where the use of uncovered manuring pits was practised. The wasps were not seen in heavily shaded areas, nor in areas where the soil was impoverished and the pest confined its breeding to rotting coconut trunks. Attempts were made to transfer adult wasps to Praslin and La Digue towards the end of the year. The public were kept informed of the Department's work.

A survey was made on Cerf Island in the release-area of the Nitidulid predator *Rhizophagus dispar* obtained from the Commonwealth Institute of Biological Control in 1955 as a possible egg-predator of *Melittomma insulare*. No recovery could be made.

Cinnamon: With a view to obtaining preliminary evidence as to which of the many possible reasons may lie behind the alleged inferiority of certain pre-war quill samples from Seychelles, quills were prepared from eight varying sites on Crown land and despatched to the Colonial Products Laboratory for report, together with samples from a private estate and from an exporter's stock. Preliminary reports were such as to encourage further work. Inadequate "sweetness" and "strength" of flavour and a tendency towards "toughness" were the main faults. Thin bark from quick-grown, upland, semi-shaded cinnamon seemed to be the most promising. Full reports were awaited at the year-end. Preliminary reports were made public.

Vanilla: The Forester's work on the growing of vanilla in young plantations is referred to in his Report. A quantity of "beans" prepared somewhat drier than usual (as said to be acceptable to U. S. A. buyers) were graded by length and in "splits" and "unsplit" and despatched for report and auction in London.

EXTENSION WORK AND SUNDRY SERVICES IN THE INTERESTS OF PRODUCERS

Union Vale Estate, the composting arrangements at the Botanical Gardens, the Forester's nursery and nearby forest plots, and three small market gardens operated by Departmental Officers (at Sans Souci, Anse Boileau, and Grand'Anse) for their private profit, continued to serve their purpose as demonstration areas. A number of visitors were shown round. A one-day exhibition was held at the Botanical Gardens on the subject of improved produce quality, pest control, etc., and a good attendance by school-children, and adults, was obtained. Over a period of several weeks pupil-teachers were given a course of agricultural general knowledge by senior officers of the Department, who took them to see the dairy, distillery, forests, etc. Estates were visited by technical officers when occasion occurred, and leasehold smallholders were called on frequently. A demonstrator trained in anti-Melittomma work and an officer qualified to lay out bench terraces were available to the public.

Information was supplied to enquirers on a wide range of subjects, the assistance of the Commonwealth Agricultural Bureaux, the Colonial Products Laboratory, Kew, the Agricultural, Animal Health and Fisheries Advisers to H. M. Secretary of State, East African, West Indian and Pacific Departments of Agriculture and a number of other individuals and bodies being sought and most generously given both in connection with those enquiries and regarding the activities of the Department. A leaflet on Ceylon cinnamon quill production was prepared and issued, and items of information and advice were inserted in the Bulletin throughout the year.

Services in the interests of producers, most of which have already been mentioned in this report, included :

1. Veterinary treatment, drugs and sundries.
2. Quarantine facilities for animals.
3. Export certification for animals.
4. Stud Bulls.
5. First cross cattle at auction.
6. First cross poultry at auction, and hatching eggs.
7. Tested vegetable seeds at non-profit prices.
8. Vanilla, yam, sweet potato, and other planting material free or at a nominal price.
9. Nursery stock (including forest trees) raised to order and sold at nominal prices.
10. Imported fertilisers, insecticides, rat-poisons, etc., sold at non-profit prices.
11. Laboratory analyses.
12. Produce inspection and quality certificates.
13. Inspection of plant imports and inspection and certification of plant exports.
14. Demonstrators available for almost any purpose.
15. Direct control of *Melittomma insulare* in Praslin.
16. Valuations and crop estimates.
17. Distillation on demand.
18. Leaflets and advisory notes.
19. Demonstration areas.
20. Distributions of beneficial insects.

SECTION III

Legislation

Ordinance No. 5 of 1956, an Ordinance to amend the Employment of Servants Ordinance, 1945 — by altering the length of former contracts for servants and the length of notices for termination of contracts between servants and employers.

Collection of Birds' Eggs (Temporary Amendment) Regulations, 1956, which amend the Birds' Eggs Regulations of 1933 by altering from the 15th. to the 1st. of July the opening of the period during which sea birds' eggs may not be collected. Applicable to 1956 only.

Ordinance No. 10 of 1956, an Ordinance to amend the Out-lying Islands (Employment of Servants) Ordinance — by making it an offence, under the Penal code, for servants under contract to fail to sail to the out-lying islands after receiving advance payment.

SECTION IV

Staff and General

1. STAFF

Mr. A. Jefferiss, B. Sc. Hort. N. D. H. continued as Director, assisted by Mr. S. M. Savy B. Sc. Agric. (Agricultural Officer), Mr. E. F. Brewer (Forester), Mr. J. F. G. Lionnet (1st. Laboratory Assistant), Mr. D. Morgan (Stock Inspector), Mr. A. Gendron, Mr. John Dookly, Mr. E. Pool, Mr. J. Laye-Sion (Clerical), and those under their supervision.

Mr. Lionnet was on overseas leave from March 16th. until October 10th., supervision of laboratory staff during the period being carried out by Mr. Laye-Sion.

The emigration to Australia of Mr. Abel Savy and Mr. Jules Savy was a loss but the Department's best wishes go to them in their new life.

Mr. F. Lalanne rejoined the Department as a 2nd. Laboratory Assistant after a period with the Medical Department, and Mr. A. J. McGaw was transferred to that Department. Some changes in the Temporary staff were necessary in order to tighten up control over lands operated by the Department. Mr. Moulinie left for forestry training in the United Kingdom.

2. GENERAL

Meetings of the Agricultural Board to discuss birds-egg conservation matters and the sole agency system for cinnamon leaf oil sales were held, and provided a useful opportunity for an exchange of views.

The visit of His Royal Highness Prince Philip was the high-spot of the year and most members of the staff were able to join in the preparations for his welcome. His charm of manner and kind interest in our small affairs were memorable.

Early in the year the Department welcomed M. Henri Legrand, an eminent French lepidopterist, and Mr. Lionnet was able to give him some assistance.

It remains only to thank all those members of the public, and officials, who gave so unsparingly of their help on many occasions, and to thank the staff of the Department for their cheerful and willing labours both as regards "getting the job done" and also, no less important, planning how to do it.

A. JEFFERISS,
Director of Agriculture.

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